Onyx 1640i

Featuring a full 16 mono mic/line channels each with 4-band dual sweep Perkins EQ, six aux sends each with pre/post and solo capability, four subgroups and a powerful master section, the Onyx 1640i is the flagship mixer of the Onyx-i series.

The Onyx 1640i is equipped with 16x16 FireWire capability, allowing all channels, aux sends, sub groups and master L/R to be routed to any desired DAW, including Pro Tools® M-Powered™ 8. 16 channels of FireWire output from the computer may be brought back directly into the channel strips for a true tape-style mixdown. FireWire aggregation allows multiple Onyx 1640i mixers to be connected.

Each channel has an Onyx mic preamp, phantom power, an input Gain control with 60 dB of gain, a sharp 18 dB/octave, 75 Hz Low Cut filter, an EQ in/out switch, Pan, Mute, Solo, assign switches, a 60mm fader and a Channel Insert jack for connecting an external processor. In addition, two DB-25 connectors provide balanced direct outputs for channels 1-8 and 9-16, respectively.

There are built-in DIs on the first two channels for direct connection of guitars or bass and a dedicated talkback section for easy communication with band members on stage or during recording sessions.

Other features include a stereo tape input and output, a ¼-inch stereo headphone jack, stereo 12-segment LED meters, BNC lamp socket and XLR and TRS stereo output jacks.

The Control Room/Phones section has its own level control, outputs and input matrix for selecting any combination of Main Mix, Tape In and Subs.

Despite its large channel count, the Onyx 1640i is compact, rack mountable and features our renowned flexible RotoPod™ design, allowing the mixer to be housed in any configuration – from custom studio furniture, live sound installs to post-production machine rooms. Plus, it's a Mackie which means it is "Built-Like-A-Tank" and will survive years of abuse.

APPLICATIONS

Live sound mixing, houses of worship, clubs, gymnasiums, banquet halls, conference rooms, boardrooms, multitrack studio and field recording, video post-production, multimedia applications, broadcast, and many, many more.
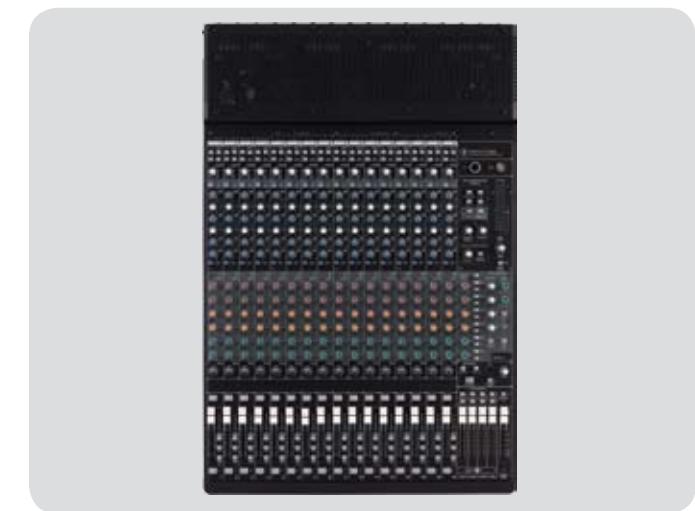
FEATURES:

- 16-channel premium analog mixer with integrated 24-bit / 96 kHz FireWire I/O

- 16 Onyx boutique quality mic preamps

- 4-band Perkins EQ with sweepable mids on all channels

- 16x16 FireWire channel streaming for ultimate DAW integration

- Flexible FireWire routing, including aux sends, groups, main L/R and pre/post EQ assignment for all channels

- 6 aux sends with pre/post assignment and solo

- Smooth 60mm channel and master faders

- Built-in DI on first two channels for direct connection of guitars, bass, etc.

- Individual 48V phantom power switches on all mic inputs

- 4-segment metering on every channel

- 4-bus architecture for flexible sub-grouping of channels

- Talkback section for use with internal or external mic

- Rotating I/O pod for desktop or rackmount operation - rack ears included

- "Planet-Earth" switching power supply for worldwide use

Onyx 1640i SPECIFICATIONS

Noise Characteristics

Equivalent Input Noise (EIN), mic input at insert, 150Ω source impedance, 20 Hz to 20 kHz

60 dB (max) gain:	–129 dBu
40 dB gain:	–128 dBu

Output Noise Figure (1/4" Main out, all channels assigned to main, Gain knobs at unity, 20 Hz to 20 kHz)

Main Mix knob down, channel Level knobs down:
–100 dBu (–104 dB SNR, ref +4 dBu)

Main Mix knob unity, channel Level knobs down:
–93 dBu (–97 dB SNR, ref +4 dBu)

Main Mix knob unity, channel Level knobs unity:
–91 dBu (–95 dB SNR, ref +4 dBu)

FireWire Through (Record + Playback) Dynamic Range:
0 dBu mic input, to DAW, routed back to mixer direct to Control Room, all gain stages unity, 20 Hz to 20 kHz

All sample rates	–105 dB

Frequency Response

Mic input to main output (all gain stages at unity)
+0, –1 dB, <10 Hz to 80 kHz
+0, –3 dB, <10 Hz to >100 kHz

Channel line input to any output (all gain stages at unity)
+0/–1 dB, 20 Hz to 20 kHz

FireWire in and out (mic input to FireWire send, returned to Control Room, all gain stages at unity)

44.1 kHz sample rate	+/–0.5 dB, 20 Hz to 20 kHz –3 dB at 21 kHz
96 kHz sample rate	+/–0.5 dB, 20 Hz to 20 kHz –3 dB at 45 kHz

Distortion (THD+N)

20 Hz to 20 kHz, 20 Hz to 80 kHz bandwidth

Mic input at insert (+4 dBu in, 0 dB gain, +4 dBu out)	0.005%
Mic input at insert (–10 dBu in, +20 dB gain, 20 Hz to 20 kHz bandwidth)	0.0007%
Stereo channel line input to any output (+4 dBu in, all gain stages at unity, +4 dBu out)	0.005%

FireWire in and out (+4 dBu in, mic input to FireWire send, returned to Control Room, all gain stages at unity)

44.1 kHz sample rate	0.02%, 10 Hz to 20 kHz
96 kHz sample rate	0.02%, 10 Hz to 10 kHz 0.05%, 10 kHz to 47 kHz

Attenuation and Crosstalk

@1 kHz

Main Mix knob down	–80 dBu
Channel Alt/Mute switch engaged	–96 dBu
Channel Level knob down	–96 dBu

Common Mode Rejection Ratio (CMRR)

Mic input to insert, max gain, 1 kHz	<70 dB

Maximum Input Levels

Mic input, gain at unity (0 dB)	+21 dBu
Mic input, gain at max (60 dB)	–38 dBu
Line input, gain at –20 dB	+30 dBu
Instrument input, gain at –20 dB	+21 dBu
Tape input	+21 dBu
Aux return	+21 dBu

Maximum Output Levels

All outputs	+21 dBu

Equalization

Low	±15 dB @ 80 Hz
Lo-Mid frequency	100 Hz to 2 kHz
Lo-Mid gain	±15 dB
Hi-Mid frequency	400 Hz to 8 kHz
Hi-Mid gain	±15 dB
High	±15 dB @ 12 kHz

FireWire

Sample Rates Available	44.1 kHz, 48 kHz, 88.2 kHz, 96 kHz
Buffer Size	32 (44.1 kHz and 48 kHz only),64, 128, 256, 512, 1024, 2048 samples
Resolution	24-bit

Meters

4-segment pre-fader channel meters	OL (+18 dBu), +10, 0, –20 dBu
12-segment pre-fader Control Room meters	OL (+20 dBu), +15, +10, +6, +3, 0, –2, –4, –7, –10, –20, –30 (0 dB = 0 dBu)

Onyx 1640i SPECIFICATIONS continued...

Input Impedance

Mic input	2.7 kΩ balanced
Hi-Z input	1 MΩ unbalanced
Mono channel line input	30 kΩ balanced
	15 kΩ unbalanced
Stereo aux returns	20 kΩ balanced
	10 kΩ unbalanced
Tape in	20 kΩ unbalanced

Output Impedance

Main XLR output	150 Ω balanced
Phones output	25 Ω
Channel Inserts	150 Ω
Tape Output	2 kΩ
All other outputs	300 Ω (balanced)

AC Power Requirements

Power Consumption	80 watts
Universal AC Power Supply	100 – 240 VAC,
	50 – 60 Hz
Operating Temperature	0˚ – 40˚C
	32˚ – 104˚F

Physical Properties (packaged product)

Height	12.0 in / 305 mm
Width	24.0 in / 610 mm
Depth	31.0 in / 787 mm
Shipping Weight	42.3 lb / 19.2 kg

Physical Properties (product)

Height	7.6 in / 193 mm
Width	17.5 in / 445 mm
Depth	26.2 in / 667 mm
Net Weight	35.0 lb / 15.9 kg

Options

Rotopod Bracket	0032244-00

Ordering Information

|	
Onyx 1640i 16-Ch./4-Bus Premium Mixer with FireWire, US	
	P/N 0030895-00
Onyx 1640i 16-Ch./4-Bus Premium Mixer with FireWire, EU	
	P/N 0030895-01
Onyx 1640i 16-Ch./4-Bus Premium Mixer with FireWire, CH	
	P/N 0030895-05

Onyx 1640i DIMENSIONS

19.0
[482.6]

7.6
[192.7]

26.2
[666.7]
16 rack spaces

20.8
[529.2]

17.5
[444.6]

7.6
[192.7]

2.5
[63.5]
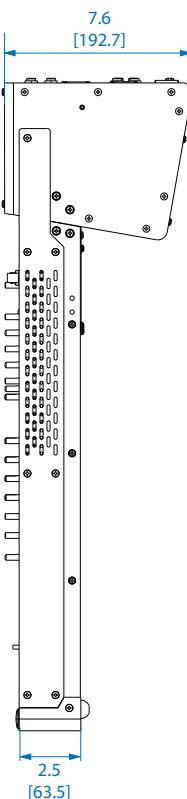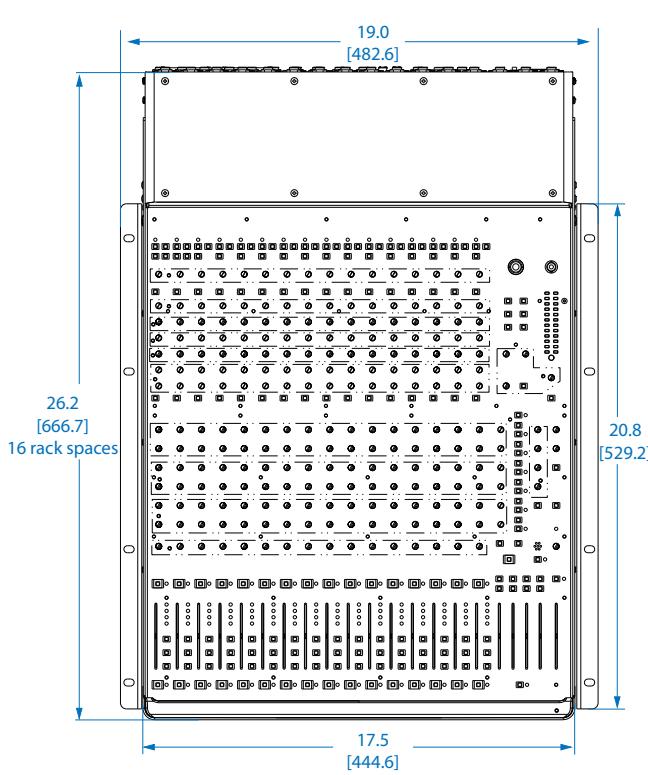
Jacks to the rear (default configuration)

19.0
[482.6]

7.8
[198.5]

28.5
[722.7]
17 rack spaces

17.5
[444.6]

2.5
[63.5]
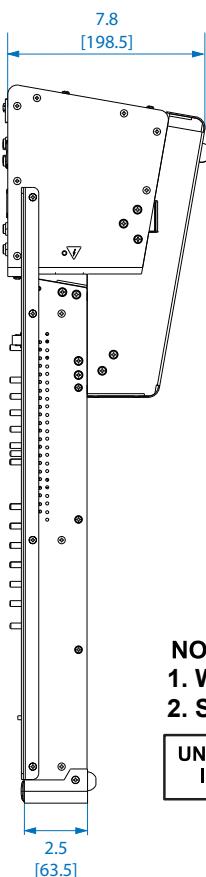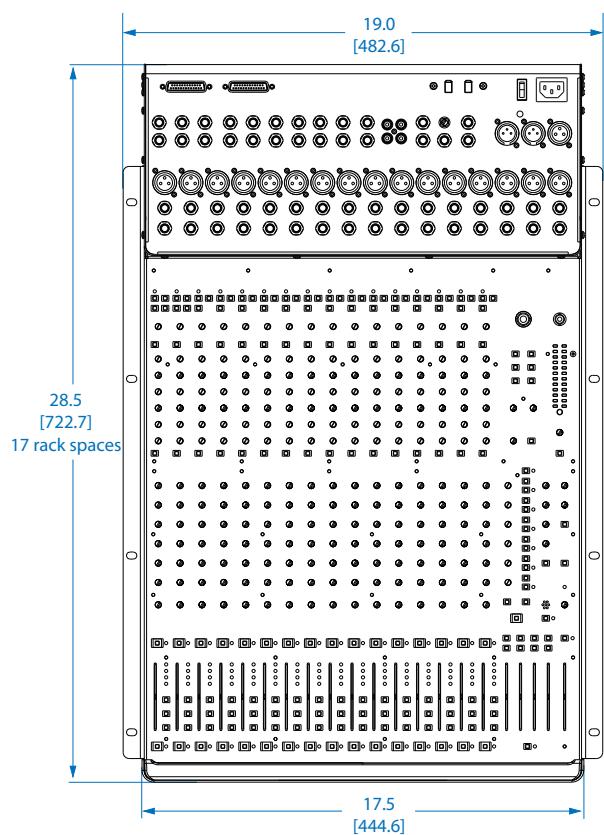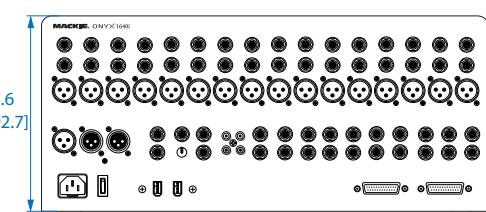
Jacks to the front (with optional rotopod bracket)

NOTES:
1. WEIGHT APPROX. 35.0 lb [15.9 kg].
2. SHIPPING WEIGHT APPROX. 42.3 lb [19.2 kg].

UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS ARE
IN INCHES. DUAL [MM] DIMENSIONS FOR REF ONLY

Onyx 1640i DIMENSIONS continued...

19.0
[482.6]

9.1
[230.3]

20.8
[529.2]
12 rack spaces

Jacks to the back

17.5
[444.6]

2.5
[63.5]
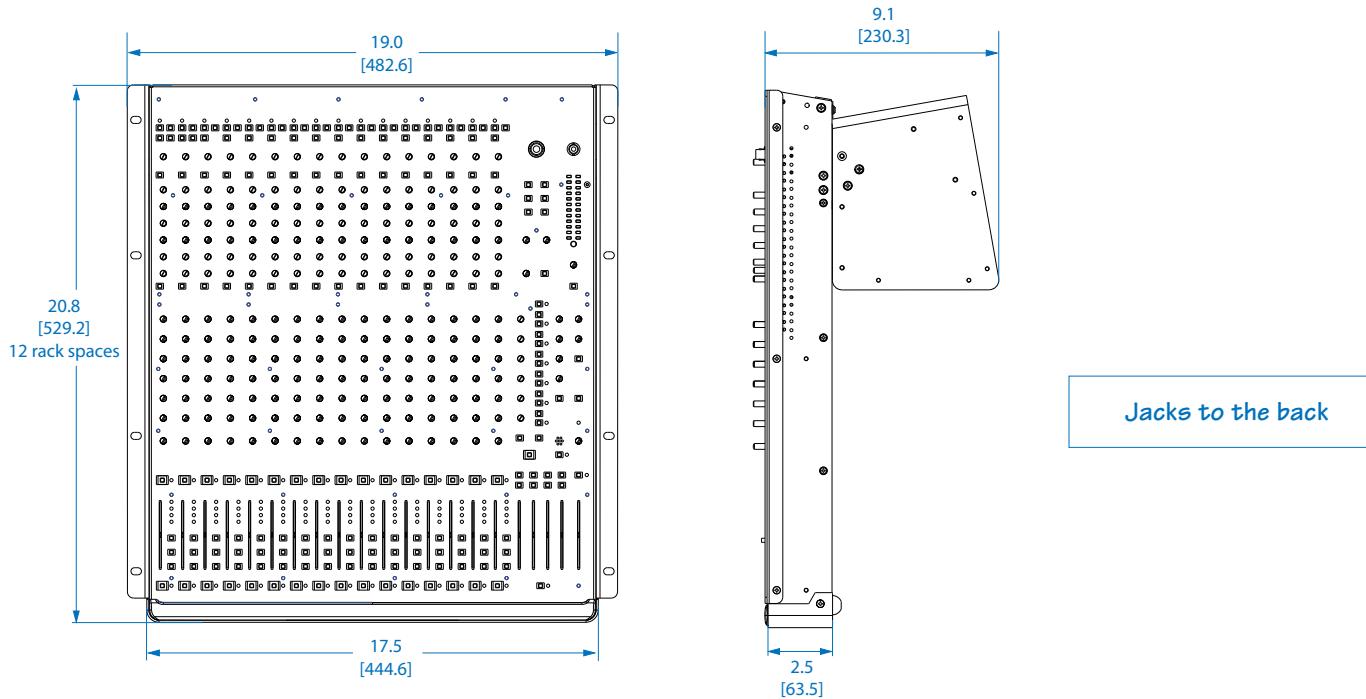
Onyx 1640i REAR PANEL
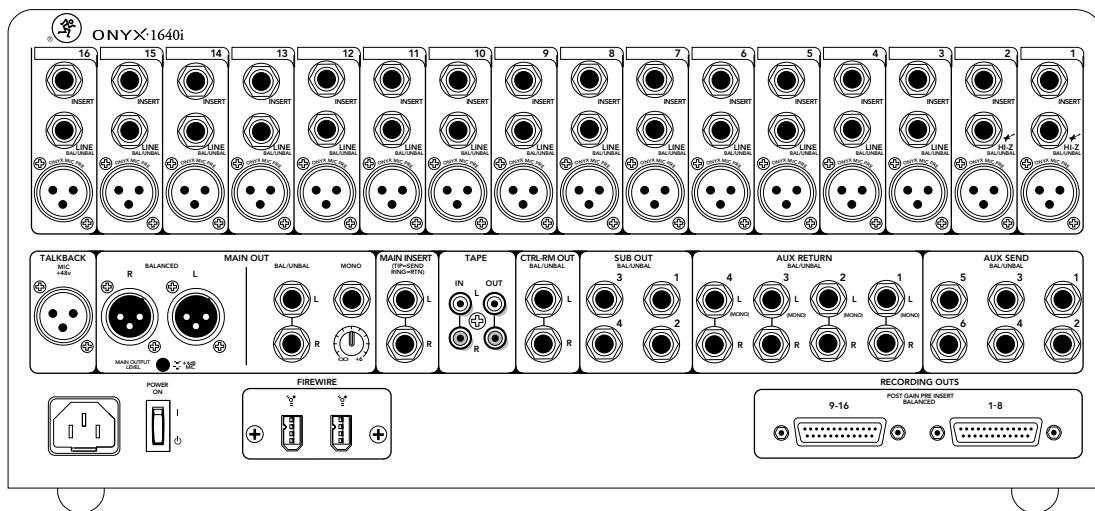
Onyx 1640i FRONT PANEL
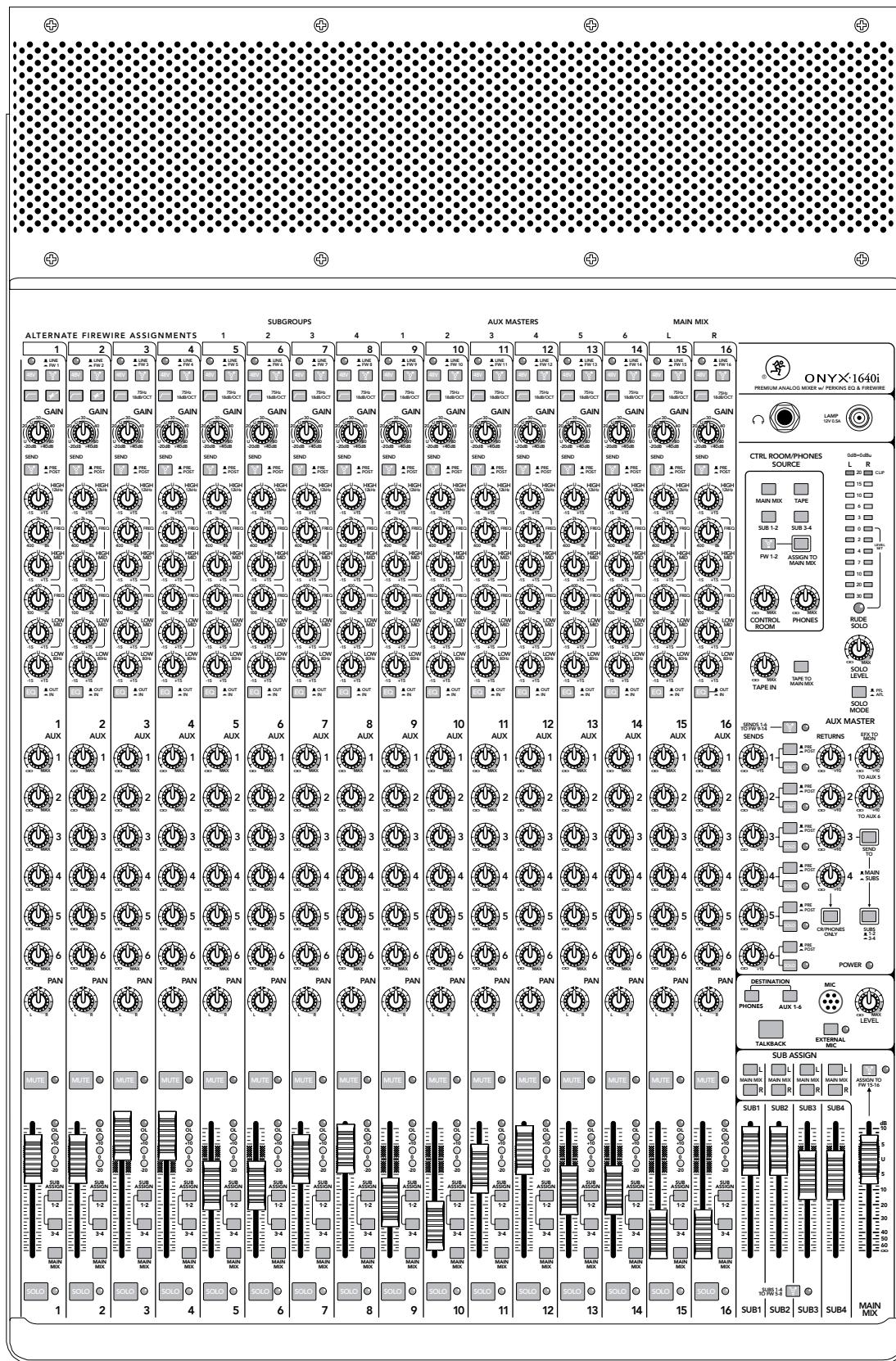
Onyx 1640i BLOCK DIAGRAM
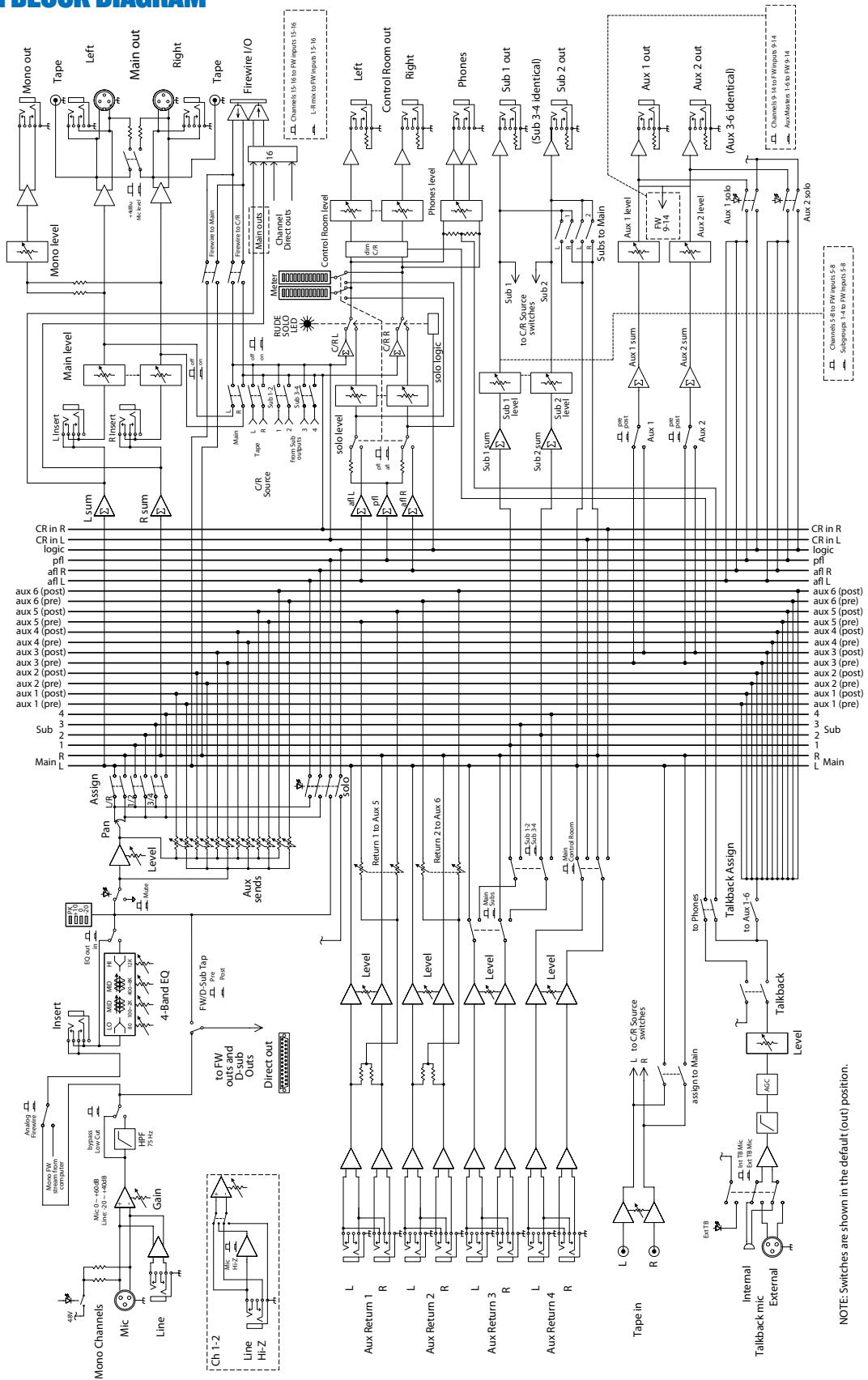
NOTE: Switches are shown in the default (out) position.

Electronic files for this product are available at:
www.mackie.com

Specification Sheet	Onyx1640i_SS.PDF
Owner's Manual	Onyx1640i_OM.PDF

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